



United States Patent and Trademark Office
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir,

As provided in 35 U.S.C. Section 301 it is desired to cite U.S. Patent 4,703,355 in the file of the patent issuing from application 10/813,814, publication 20050219366.

4,703,355 teaches measuring the relative timing of audio and video signals. The invention includes a timing encoder having a timing signal generator located before the video transmission path (which causes the video delay) and a delay decoder located after the video transmission path. The timing encoder contains a timing signal generator to generate audio timing signals and a combiner circuit which combines the audio timing signals and the video part of the television program. The video and the audio timing signals are transmitted together through a transmission path or video processing device having a delay (col. 2, l. 58 – col. 3, l. 6).

The audio signal may be marked with a pilot tone or other timing signal (col. 11, l. 33-38).

At the output of the video transmission path, a timing signal recovery circuit operates to recover the timing signal information. (col. 3, l. 7 – 14).

A delay detector in the delay decoder is responsive to audio and video timing signals, which signals are output from the timing signal recovery circuit. The delay detector operates to determine the relative delay between the two timing signals which correspond to the timing error between audio and video (col. 3, l. 15 - 22). The timing error is presented to a variable delay (33 of Fig. 5).

The teachings include the use of the invention with a plurality of audio signals (Figs. 5 & 6).

See also claim 19.

In the '355 patent, various functions have been shown in preferred form, in particular in either analog or digital form as is most appropriate for the above explanations. One skilled in the art will immediately recognize that parts shown as analog can be converted to digital and vice versa. Consequently, the '355 teaches the use of the invention with digital audio and video signals.

Thus the '355 patent shows adding timing signals (markers) to the audio and video signals (which may be digital or analog) before the transmission path (system under test), in response to the video sync (the initiation of the initiation of a test cycle), receiving and recovering the timing signals from the audio and video after the transmission path (detector) and determining the relative delay of the audio and video by comparison of the recovered timing signals and providing a delay signal (presenting a sensed result).